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Recommended Citation

Charles C. Cox & Douglas C. Michael, *The Market for Markets: Development of International Securities and Commodities Trading*, 36 Cath. U. L. Rev. 833 (1987)

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The Market for Markets: Development of International Securities and Commodities Trading

Notes/Citation Information

Catholic University Law Review, Vol. 36, No. 4 (Summer 1987), pp. 833-862

THE MARKET FOR MARKETS: DEVELOPMENT OF INTERNATIONAL SECURITIES AND COMMODITIES TRADING

Charles C. Cox*
and Douglas C. Michael**

International linkage of securities exchanges is an idea unheard of not long ago, but whose time has come quickly. Since 1984, five different links have been created between United States securities or commodities exchanges and counterparts abroad.¹ Three other links have been proposed,² and several more are being informally discussed.³ At the same time, financial firms are investing in in-house international trading technology.⁴ The exchanges are battling the development of these in-house trading links for

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The views expressed herein are those of Commissioner Cox and Mr. Michael and do not necessarily represent those of other Commissioners or the staff of the Securities and Exchange Commission.

1. Three linkages involve securities exchanges: the Boston and Montreal stock exchanges, *see infra* notes 13-17 and accompanying text; the American and Toronto Stock Exchanges, *see infra* notes 18-23 and accompanying text; and the Midwest and Toronto Stock Exchanges, *see infra* notes 26-28. Two linkages involve commodities exchanges: the Chicago Mercantile Exchange and the Singapore International Monetary Exchange, *see infra* notes 9-12 and accompanying text, and the Commodities Exchange and the Sydney Futures Exchange, *see infra* notes 43-46 and accompanying text.

2. These proposals would link currency option trading on the Philadelphia Stock Exchange and the London Stock Exchange, and options trading in the American Stock Exchange's Major Market Index on the American Stock Exchange and the European Options Exchange, *see infra* notes 29-34 and accompanying text, and would link quotations from the National Association of Securities Dealers, Inc. with those from the Singapore Stock Exchange. *See infra* note 39.

3. These informal discussions include those among the New York, London, and Amsterdam Stock Exchanges, the Chicago Board of Trade and the London International Financial Futures Exchange, and the Midwest and London Stock Exchanges. *See* Report of the Securities and Exchange Commission to the House Committee on Energy and Commerce on the Internationalization of the Securities Markets (Oct. 1, 1986); Clements, *A Whale of a Sales Drive*, *EUROMONEY*, May 1986, at 176, 179; *see also infra* notes 40-42.

4. *See* Schmitt, *The Technology Gamble*, *Wall St. J.*, Sept. 29, 1986, at 10D, col. 1. One consulting group executive compares this investment in technology to the arms race. "People are stoking up because everyone else is stoking up." *Id.*

the expanding business in international securities and commodities trading,⁵ attempting to persuade traders to use linked markets rather than their own internal connections.⁶ "Each exchange is involved in a bitter struggle with every other exchange for that most precious of financial commodities: liquidity. If an exchange loses it—either to other exchanges or to the growing telephone market—it is dead."⁷

This rapid development suggests that markets are linking to fill an existing demand and to stimulate active trading. Experience to date, however, has not borne out this assumption. Table 1 indicates the volume of trading through 1986 in the three currently-operating securities market linkages; Table 2 indicates the same information for the two commodities market linkages. Although a large number of trades do occur, the volume is not significant.⁸

5. See Wymeersch, *From Harmonization to Integration in the European Securities Markets*, 3 J. COMP. CORP. L. & SEC. REG. 1, 2-3 (1981).

6. *The Internationalization of Capital Markets: Hearings Before the Senate Comm. on Banking, Housing and Urban Affairs*, 99th Cong., 2d Sess. 38 (1986) [hereinafter *Internationalization Hearings*] (statement of Gordon S. Macklin, President, National Association of Securities Dealers, Inc.).

[F]irms will prefer to execute orders by telephone until their volume of business and the economics of such dictate otherwise. This is particularly likely to be the case internationally, because firms may well prefer, in the early stages, to use the telephone contact as a means of building close professional relationships from country to country.

Id.; see Roth, *Battling for Survival*, Wall St. J., Sept. 29, 1986, at 32D, col. 1 ("The lowest-cost financial technology is the WATS line.").

7. Clements, *supra* note 3, at 176; see *Endless Dealing: U.S. Treasury Debt is Increasingly Traded Globally and Nonstop*, Wall St. J., Sept. 10, 1986, at 1, col. 1 (firms' upstairs trading capabilities "are fast outpacing securities and commodities exchanges' 24-hour trading plans").

8. The total securities linkage volume for 1986 as a percentage of total 1985 stock trading volume for each exchange is 0.42% for Boston, 0.04% for Amex, and 0.01% for Midwest. See 52 SEC ANN. REP., 129 (1987) [hereinafter Securities and Exchange Commission]. The total linkage volume for 1986 on the CME was 0.95% of the 1985 volume in the Chicago Board Options Exchange's Standard & Poor's (S & P) 100 Index option, the largest-selling product, and 5.75% of the 1985 volume of the S & P 500 Index future, the CME's top-selling product. See Carey, *Frenzy in Chicago*, FIN. WORLD, Sept. 16, 1986, at 99, 102.

Table 1

Trading Volume Through Securities Market Linkages: 1985-86
(in thousands of shares)

Yr/Qtr	Linkage:		
	Boston-Montreal	Amex-Toronto	Midwest-Toronto
1986/IV	621	239	121
1986/III	722	126	117
1986/II	744	135	81
1986/I	1004	426	*
1985/IV	236	137	*
1985/III	161	*	*
1985/II	NA	*	*
1985/I	NA	*	*

NA - not available

* - Linkage not operating during this quarter

Source: Boston Stock Exchange, American Stock Exchange, Midwest Stock Exchange

Table 2

Trading Volume Through Commodities Market Linkages: 1985-1986
[end-of-quarter open interest in brackets]
(in thousands of contracts)

Yr/Qtr	Linkage:	
	CME-SIMEX	Comex-Sydney
1986/IV	228 [19]	4†
1986/III	277 [20]	*
1986/II	207 [9]	*
1986/I	154 [5]	*
1985/IV	134 [3]	*
1985/III	145 [4]	*
1985/II	147 [3]	*
1985/I	113 [2]	*

† From inception of trading on Nov. 20, 1986

* - Linkage not operating during this quarter

Source: Chicago Mercantile Exchange, Commodities Exchange

This trading experience indicates that market linkages have not been developed in response to existing or articulated demand. The rush to develop international trading systems, therefore, is not motivated by the exchanges' desire to capitalize on traders' existing need of, and consequent willingness

to pay for, an international marketplace. Assuming that development of these links is not cost-free, and also assuming that the exchanges involved are profit-maximizing firms, they must anticipate some future demand for these services in order to justify the present investment in linkages.

This Article explores the economic theory of market development and applies it to the international marketplace, in an attempt to determine why market linkages are developing in the absence of apparent or articulated demand. Part I chronicles the development of the five existing market linkages. Part II discusses economic theories of market development and applies them to these international market linkages as well as an existing domestic model of market linkage: the Intermarket Trading System. Part III discusses the various regulatory issues raised by international market development.

I. DEVELOPMENT OF MARKET LINKAGES

The history of the development of market linkages is short but active. The first link was made in the commodities markets in 1984. Early in 1984, the Chicago Mercantile Exchange (CME) proposed a "mutual offset system" with the Singapore International Monetary Exchange, Ltd. (SIMEX).⁹ Under the plan, adopted later in 1984,¹⁰ the exchanges are linked through a computerized clearing system which can transfer a position in a contract from one exchange to the other.

For example, a trade executed on SIMEX on behalf of a CME clearing member would be transferred to the CME's account at the SIMEX clearing organization, resulting in the establishment of an identical position on the CME for the CME clearing member. The position thus established would thereafter be treated . . . as having been executed in the first instance on the CME.¹¹

Although this across-time-zones link was characterized as "a chance to share liquidity," trading volume has been slow to develop.¹²

9. See Chicago Mercantile Exchange, 49 Fed. Reg. 16,827 (1984) (proposed April 20, 1984).

10. See *CFTC Approves U.S.-Singapore Link; Expands Trading Day in Three Contracts*, 16 Sec. Reg. & L. Rep. (BNA) 1457 (Aug. 31, 1984). The period for comment on the proposal was extended to receive comments on the final contract between CME and SIMEX. See 49 Fed. Reg. 21,785 (1984). Only the New York Mercantile Exchange (NYMEX) filed a comment letter, which alleged that the proposed link would have anticompetitive effects because of an exclusivity clause. See *NYMEX Challenges CME-SIMEX Linkage as Anticompetitive*, 16 Sec. Reg. & L. Rep. (BNA) 1332 (Aug. 10, 1984).

11. See Chicago Mercantile Exchange, *supra* note 9, at 16,827. The system was set up for trading futures contracts in eurodollars and Japanese yen. *Id.* at 16,827 n.1.

12. Clements, *supra* note 3, at 179 (citing lack of involvement in Singapore as the reason, despite its potential to become "the Asian centre for futures and options," thwarting the

Shortly before the CME-SIMEX link was given final approval by the Commodity Futures Trading Commission (CFTC), the Boston Stock Exchange filed with the Securities and Exchange Commission (SEC or Commission) plans for an order-transfer linkage with the Montreal Stock Exchange.¹³ The linkage provides for "southbound" trading only: "members of the Montreal Exchange will direct orders to the floor of the [Boston Stock Exchange] through electronic terminals located on the floor of the Montreal Exchange."¹⁴ The first part of the linkage, approved in late 1984, included only marketable¹⁵ orders in stocks of forty Canadian companies listed in the United States or trading pursuant to unlisted trading privileges in the Intermarket Trading System (ITS).¹⁶ The second part, approved in early 1985, expanded the trading list to all stocks eligible for trading through ITS.¹⁷

One month after the second Boston-Montreal plan was approved, the American Stock Exchange (Amex) filed proposed rules for a linkage with the Toronto Stock Exchange.¹⁸ The proposal differed in two major respects from the Boston-Montreal linkage. First, order flow was anticipated in both directions, although initial trading was only southbound. Second, the

efforts of the Tokyo Stock Exchange to extend its dominant position to such "hybrid" products as currency futures.) (quoting a Japanese investment banker). SIMEX also has small volume. Of its average of 4000 contracts per day, about 30% are transferred back to Chicago through the link. Carey, *supra* note 8, at 103 (quoting Richard Heckinger, CME Vice President).

13. See Securities Exchange Act Release No. 21,324, 49 Fed. Reg. 37,200 (Sept. 21, 1984) (proposed Sept. 21, 1984). The Boston-Montreal plan was filed on August 23, 1984, *id.* at 37,200, and the CME-SIMEX link was approved on August 31, 1984. See *CFTC Approves U.S.-Singapore Link; Expands Trading Day in Three Contracts*, *supra* note 10, at 1457.

14. Securities Exchange Act Release No. 21,324, 49 Fed. Reg. 37,200, 37,200 (Sept. 21, 1984) (proposed Sept. 21, 1984).

15. "Marketable" orders are those which can currently be executed.

Orders from Montreal will be priced by the Montreal member and executed at that price or a more favorable price [by the Boston Stock Exchange specialist]. When an execution is not possible under those terms, the order is automatically cancelled [sic] and a message sent back to Montreal that the order has not been filled. Limit orders will not be accepted in the initial phase of the linkage.

Securities Exchange Act Release No. 21,449, 49 Fed. Reg. 44,575, 44,576 n.2 (Nov. 7, 1984).

16. *Id.* at 44,576. For a background on development and operation of the Intermarket Trading System, see *infra* notes 71-81 and accompanying text.

17. Securities Exchange Act Release No. 21,925, 50 Fed. Reg. 14,480 (1985). In addition, all agency orders submitted through the linkage became subject to the Boston Stock Exchange's rule guaranteeing execution of agency orders of 100 to 1299 shares at the best bid or offer. *Id.* at 14,481 n.6.

18. Securities Exchange Act Release No. 22,001, 50 Fed. Reg. 19,507 (May 9, 1985) (proposed May 8, 1985).

linkage was designed to accept "away from the market" orders,¹⁹ to be held by the receiving exchange for execution when possible and subject to limited trade-through protection.²⁰ The Commission heralded this first-ever link between two primary markets in the United States and Canada,²¹ but stressed that increased surveillance would be necessary because trading would be directed out of the United States onto a foreign exchange. The Commission noted the extensive cooperation between the two exchanges, and assurances of cooperation that it received from the Ontario Securities Commission.²² The Commission approved the link in the late fall of 1985. Trading began in seven securities listed on both exchanges, but the participants indicated that they intended to expand it to include all dually-listed securities.²³

Reviews of these United States-Canada links have been mixed. The low trading volume and the one-way operation in the case of the Boston-Montreal link have been cited as indications of lack of interest on the part of the traders and ineffective design by the exchanges.²⁴ One Commission staff member indicated that "it is clear that these links will not dramatically change the Canadian or American markets. They will, however, encourage international trading."²⁵

Limited success did not stop the expansion of the links, however. The newest United States-Canada trading arrangement appeared shortly after the Amex-Toronto proposal, when the Midwest Stock Exchange filed rule proposals with the Commission to implement a similar link with Toronto. Like the Amex link, it was intended to eventually provide for two-way trading in all dually-listed stocks and the submission of away-from-the-market or-

19. Initially, the linkage provided only for marketable orders, as with the Boston-Montreal linkage. *Id.*

20. See *infra* notes 80-81 and accompanying text (discussion of trade-through protection in the Intermarket Trading System).

21. Securities Exchange Act Release No. 22,442, 50 Fed. Reg. 39,201, 39,201 n.5 (Sept. 27, 1985) (order approving proposed rule change).

22. *Id.* at 39,204-06.

23. *Id.* at 39,201. Seventeen securities are currently trading through the link. See *infra* note 116 and accompanying text.

24. Clements, *supra* note 3, at 180. When Clements wrote in May of 1986, the Amex-Toronto link generated less than 10 orders a day, and the Boston-Montreal link 30 to 50. Critics of the links included Philadelphia Board of Trade President Arnold Staloff ("It sounds sexy; it gets media attention; but it's a lot of fluff") and Vancouver Stock Exchange President Donald Hudson ("It's OK to be all things to all men but you have to end up with some trading. With links, you have to make sure the trading is going both ways."). *Id.* But see Table 1 and *supra* note 8 (trading volume through Boston-Montreal link is larger than the others, although still a small percentage of total trading).

25. Ketchum, *The Role of the Securities and Exchange Commission in Regulating International Securities Trading: Looking to the Future*, 4 B.U. INT'L L.J. 33, 36 (1986).

ders.²⁶ The proposed linkage was approved by the Commission in the spring of 1986.²⁷ In its notice of approval, the Commission noted, as it did in approving the Amex-Toronto link, that cooperative efforts in surveillance would be made by the two exchanges, the Commission, and the Ontario Securities Commission.²⁸

The next development in linkages was a move into yet another type of security. In mid-1985, the Philadelphia Stock Exchange and the Options Clearing Corporation (OCC) filed proposed rule changes to link trading of foreign currency options with the London Stock Exchange.²⁹ Under the proposal, foreign currency options with the same terms would be fungible; positions taken on one exchange could be liquidated on the linked exchange.³⁰ However, the Commodity Exchange Act could prevent full two-way trading, because it may not allow United States persons to trade on a foreign exchange.³¹ Although the proposals were last updated in early

26. Securities Exchange Act Release No. 22,136, 50 Fed. Reg. 25,501 (June 19, 1985).

27. Securities Exchange Act Release No. 23,075, 51 Fed. Reg. 11,854 (Apr. 7, 1986).

28. "The exchanges have provided for surveillance and information sharing procedures similar to those in use in connection with the Amex-[Toronto] linkage. Likewise the SEC and [the Ontario Securities Commission] have reiterated their commitment to an open and cooperative flow of information." *Id.* at 11,858.

29. Securities Exchange Act Release No. 22,354, 50 Fed. Reg. 35,340 (Aug. 30, 1985) (Options Clearing Corp. rule proposal); Securities Exchange Act Release No. 22,343, 50 Fed. Reg. 34,955 (Aug. 28, 1985) (background on proposed linkage).

The London Stock Exchange recently changed its name to the International Stock Exchange of the United Kingdom and Ireland. Grant, *Midwest Discussing Trading Link with London*, INVESTMENT DEALERS' DIG., Feb. 9, 1987, at 8. It is still routinely referred to as "London" or the "London Stock Exchange." See, e.g., *id.*

30. Securities Exchange Act Release No. 22,354, 50 Fed. Reg. 35,340, 35,343 (Aug. 30, 1985).

31. This is the result of the distribution of jurisdiction between the SEC and the CFTC. Foreign currency options traded on a national securities exchange are "securities." Securities Exchange Act § 3(a)(10), 15 U.S.C. § 78c(a)(10) (1982). The SEC generally has jurisdiction over these. *Id.* § 9(g), 15 U.S.C. § 78i(g). Otherwise, foreign currency is considered a "commodity" and all other foreign currency options are contracts for future delivery of that commodity. Commodity Exchange Act § 2(a)(1)(A), 7 U.S.C. § 2 (1982). Prior to its amendment in 1982, the Commodity Exchange Act was usually interpreted to prohibit transactions in these options unless through a member of a CFTC-designated contract market. See *id.* §§ 4, 4(h), 7 U.S.C. §§ 6, 6(h) (1976) (amended 1982); Regulation of Foreign Futures Transactions in the United States, 49 Fed. Reg. 29,963, 29,966 (1984) (CFTC advance notice of proposed rulemaking); 1 P. JOHNSON, COMMODITIES REGULATION 206-12 (1982). Thus, transactions on the Philadelphia Stock Exchange are not subject to § 4 of the Commodity Exchange Act, but transactions on the London Stock Exchange (not through members of a designated contract market) would have violated this provision. Similar overseas links by commodities markets would not have been prohibited, because the trading takes place through a designated contract market as required by the Commodity Exchange Act. See *id.*

The Commodity Exchange Act was amended in 1982 to give the CFTC authority to permit domestic trading of foreign futures contracts. Regulation of Foreign Futures Transactions in the United States, *supra*, at 29,963; see Commodity Exchange Act § 4(b), 7 U.S.C. § 6(b)

1986,³² no further action has been taken by either party.

A few weeks after the latest update of the Philadelphia-London proposal, Amex announced that it had arranged for trading of the Major Market Index on the European Options Exchange (EOE) in Amsterdam.³³ The arrangement is similar to that between Philadelphia and London; the options traded on Amex and the EOE would be fungible, and all clearing and settlement would take place through the OCC in the United States.³⁴

In the spring of 1986, another link with the London Stock Exchange was developed. The National Association of Securities Dealers, Inc. (NASD) sought and received approval of a quotation linkage.³⁵ The program provides for display through the National Association of Securities Dealers' Automated Quotation System (NASDAQ) of quotations for securities of the most highly-capitalized United Kingdom domestic companies, all individual market-maker quotations in non-United Kingdom securities, and the Financial Times/Stock Exchange 100 Index. In return, the London Stock Exchange's Topic system will display all individual market-maker quotations in selected NASDAQ securities and the NASDAQ-100 index, as well as quotations for American Depositary Receipts of non-United Kingdom companies.³⁶ In approving the agreement on a pilot basis,³⁷ the Commission noted that the NASD-London quotation linkage did not raise the same enforcement concerns as did the previously approved exchange trading links.³⁸ However, London and the NASD have indicated that they would be exploring following establishment of the quotation link with settlement and trading

(1982). In 1986, the CFTC proposed rules regulating foreign futures transactions. See *Foreign Options and Foreign Futures Transactions*, 51 Fed. Reg. 12,104 (1986). Trading through a link agreement would be exempt from the proposed regulations; both the CME-SIMEX and the Comex-Sydney links are cited as examples. *Id.* at 12,108.

32. See Securities Exchange Act Release No. 22,847, 51 Fed. Reg. 4551 (Feb. 5, 1986).

33. *Amex Says Options Will Trade in Amsterdam*, Wall St. J., Feb. 20, 1986, at 5, col. 3.

34. American Stock Exchange, Press Release 2 (Feb. 19, 1986).

35. See Securities Exchange Act Release No. 23,158, 51 Fed. Reg. 15,989 (Apr. 29, 1986) (approving proposed rule changes); Securities Exchange Act Release No. 23,022, 51 Fed. Reg. 9738 (Mar. 20, 1986) (publishing proposed rule changes for comment).

36. Securities Exchange Act Release No. 23,022, 51 Fed. Reg. 9738, 9738-39 (Mar. 20, 1986). NASDAQ will be providing quotations in roughly 270 securities through London's Topic system, and London will be providing quotations in about 390 securities through NASDAQ. *Link or Lose*, THE ECONOMIST, Apr. 26, 1986, at 87.

37. The Commission gave its initial approval for only six months, in order to monitor operation of the system in light of objections filed by Instinet, Corp. that the NASD-London linkage would have certain anticompetitive effects. Securities Act Release No. 23,158, 51 Fed. Reg. 15,989, 15,991 (Apr. 29, 1986). That approval has been extended, most recently to June 3, 1987, with the Commission suggesting that the NASD submit its two-year pilot proposal by that time. Securities Exchange Act Release No. 24,292, 52 Fed. Reg. 11,578 (Apr. 9, 1987).

38. Securities Exchange Act Release No. 23,158, 51 Fed. Reg. 15,989, 15,990 (Apr. 9, 1986).

links.³⁹

The quotation linkage with the NASD and the proposed options linkage with the Philadelphia Stock Exchange are only two of many efforts to link with London. The New York Stock Exchange (NYSE),⁴⁰ the Midwest Stock Exchange,⁴¹ and the Chicago Board of Trade⁴² are all discussing arrangements with their London counterparts.

The most recent development in international linkage is in the commodities market, where linkage began. In mid-1986, the Commodity Exchange, Inc. (Comex) sought and received approval from the Commodity Futures Trading Commission for a trading link with the Sydney Futures Exchange.⁴³ In contrast to the "mutual offset" system of the CME-SIMEX arrange-

39. *Link or Lose*, *supra* note 36, at 87. Recently, the NASD announced a similar quotation sharing arrangement with the Stock Exchange of Singapore. Each market will give the day's closing quotes to the other market. Smith, *NASD Will Exchange Price Quotations With Singapore on 50 Big OTC Stocks*, Wall St. J., May 6, 1987, at 40, col. 1.

40. The New York Stock Exchange was expected to follow the NASD linkage announcement with one of their own. See *Link or Lose*, *supra* note 36, at 87; Clements, *supra* note 3, at 180. Although tentative discussions have been repeatedly publicized, no formal arrangements have been disclosed. See McMurray & Andrews, *Big Board, London Exchange Discuss Trading, Data-Reporting Joint Ventures*, Wall St. J., Jan. 7, 1985, at 3, col. 2.

Recently, the NYSE has twice changed its position on whether member firms can trade NYSE-listed securities in London during New York trading hours. Initially, the NYSE stated that trades in London do not violate the NYSE's off-board trading rules. Grant, *London Trades in NYSE-Listed Stocks Don't Violate Rules*, INVESTMENT DEALERS' DIG., Feb. 23, 1987, at 6. For a discussion of off-board trading, see *infra* note 67. Subsequently, however, NYSE President Robert Birnbaum said that trading simultaneous with the NYSE would be permitted only if it occurs on the floor of the London Stock Exchange because this trading would be similar to the NYSE's specialist system. This would be a virtual prohibition, however, since there is little equities trading on the floor of the London Stock Exchange; indeed, it will be closed next year. Most trading in London now takes place between dealers, similar to the United States over-the-counter market. Grant, *Birnbaum Says NYSE Rules Restrict London Trading*, INVESTMENT DEALERS' DIG., Mar. 9, 1987, at 10. Then, reversing its position again, the NYSE determined that it would defer to the United Kingdom's characterization of the London trading system as an "exchange," and therefore suitable for NYSE-member trading during NYSE hours. *Big Board Bows to U.K. on London Exchange's Status*, Wall St. J., Mar. 13, 1987, at 1, col. 2. Most NYSE members trading NYSE-listed equities in London currently stop when the NYSE opens. London had been expected to eventually challenge this practice. Grant, *supra* note 29, at 8. Such a challenge would not be necessary under the NYSE's current interpretation of its rule.

41. The Midwest Stock Exchange is discussing quotation links, possibly followed by trading links, with the London Stock Exchange. Grant, *supra* note 29, at 8.

42. The Chicago Board of Trade and the London International Financial Futures Exchange (LIFFE) have agreed to link trading. LIFFE already has a similar agreement with Sydney. Gilpin, *Chicago-London Futures Link Is Set*, N.Y. Times, Feb. 10, 1987, at D9; *London Futures Exchange To Open Link With Sydney*, Wall St. J., Aug. 22, 1986, at 20, col. 2.

43. See Commodity Exchange, Inc., Proposed Rule Amendments, 51 Fed. Reg. 12,539 (1986) (notice of rule proposal); *CFTC Approves Rules Implementing Trading Link Between Comex and SFE*, 18 Sec. Reg. & L. Rep. (BNA) 1221 (Aug. 15, 1986) (adoption of proposal).

ment,⁴⁴ the Comex-Sydney link involves a single clearing association, which means that "a position established on one exchange could be liquidated on the linked exchange."⁴⁵ The trading, initially proposed in a gold bullion futures contract, takes place in a single trading day that begins in Sydney and ends in New York.⁴⁶

Thus, in less than three years, nine markets have been linked for trading and two others to share quotation information. Commentators have characterized this as an "intensely competitive" environment,⁴⁷ with the world's exchanges attempting to defend their central market system against "the onslaught of . . . canny information providers."⁴⁸

II. PURPOSES OF MARKET LINKAGES

To be fully understood, the development of market linkages should be examined against a background of economic theory. This part of the Article develops that theory, and includes rationales for the existence of brokers, dealers, specialists, and exchange markets. These theories will then be applied to the "prototype" linkage of domestic markets, the Intermarket Trading System, and to the market linkages that were discussed in Part I: the securities market links, the commodities market links, and quotation links. Other reasons for market links will be examined, and the development of these links will be compared with the development of inter-dealer or "upstairs" trading.

A. *The Economics of Market Development*

The economic theory of market development begins with the realization that transaction costs exist. A buyer has costs of searching for a potential seller, and vice versa.⁴⁹ If buyers and sellers use brokers to perform this task, their expected search costs will be lower. This is true even if the bro-

44. See discussion of the CME-SIMEX link, *supra* notes 9-12 and accompanying text.

45. See Commodity Exchange, Inc., Proposed Rule Amendments, 51 Fed. Reg. 12,539 (1986) (proposed Apr. 11, 1986).

46. *Id.*

47. Clements, *supra* note 3, at 183.

48. *Link or Lose*, *supra* note 36, at 87.

49. This is micro-economic or price theory. It differs from traditional price theory because: transaction costs exist, price changes may not indicate extrinsic shifts in supply or demand, and random-walk pricing generally does not hold. R. WEST & S. TINIC, *THE ECONOMICS OF THE STOCK MARKET* 26-28 (1971); see also Glosten & Milgrom, *Bid, Ask and Transaction Prices in a Specialist Market with Heterogeneously Informed Traders*, 14 J. FIN. ECON. 71, 71-72 (1985). "Classical price theory . . . has little to say about the dynamics of matching buyers and sellers." *Id.*

ker's cost to conduct each search is the same as the individual's cost.⁵⁰

Researchers have simulated broker-based markets, treating incoming orders as random events.⁵¹ This simulated broker market is more liquid than one of individuals undertaking their own searches for willing buyers and sellers. Liquidity here is defined as "a market characteristic that enables investors to dispose of or purchase securities at a price reasonably related to the preceding price."⁵²

However, these simulated markets break down when "market orders" are permitted, that is, if individual buyers and sellers do not have to specify a price. Individuals who enter "market" orders confound the market when their orders cross: a "market" buy order and a "market" sell order cannot be executed mechanically. The market is illiquid because a price to execute this transaction is not required to be related to preceding prices.⁵³ In order to handle market orders and imbalances, the market requires a dealer trading for his own account.⁵⁴

The presence of a dealer creates the familiar bid-ask spread that characterizes securities markets. The dealer profits by buying slightly below the equilibrium price and selling slightly above it.⁵⁵ Subsequently, because the equilibrium price may vary, there will be traders willing to transact on these terms. "Price fluctuations . . . provide a rationale for the presence of individuals who simultaneously maintain limit orders to buy and sell stocks."⁵⁶ The dealer's standing buy and sell prices reduce variability of the market, because traders know what the price will be and they no longer have to wait to "match" an incoming order on the other side.⁵⁷ The spread is the price paid for this liquidity or "predictable immediacy."⁵⁸ Reduced price variabil-

50. R. WEST & S. TINIC, *supra* note 49, at 32.

51. West and Tinic build simulation models. *Id.* at 33-34. They recognize the earlier work in simulation by George Stigler. *Id.*; see Stigler, *Public Regulation of the Securities Markets*, 37 J. BUS. 117 (1964); see also Hakansson, Beja & Kale, *On the Feasibility of Automated Market Making by a Programmed Specialist*, 40 J. FIN. 1, 6-7 (1985) (recent market simulation model).

52. Poser, *Restructuring the Stock Markets: A Critical Look at the SEC's National Market System*, 56 N.Y.U. L. REV. 883, 886 (1981).

53. See *id.* (definition of liquidity). As a practical matter, of course, individuals would not enter "market" orders if, when matched with a corresponding "market" order, they would fail or would be executed at an arbitrary price.

54. In this context, the term "dealer" could apply either to a market maker or an exchange specialist.

55. R. WEST & S. TINIC, *supra* note 49, at 34-35.

56. *Id.* at 34.

57. *Id.* at 37.

58. Demsetz, *The Cost of Transacting*, 82 Q.J. ECON. 33, 35-36 (1968); accord Benston & Hagerman, *Determinants of Bid-Asked Spreads in the Over-the-Counter Market*, 1 J. FIN. ECON. 353, 354 (1974) ("The price charged for this product [immediate exchange] is the

ity reduces transaction costs, contributing to economic efficiency.⁵⁹ Thus, markets with brokers and dealers are more efficient markets than those composed of individuals standing alone.

This theory suggests that brokers and dealers are beneficial to buyers and sellers. It does not explain, however, why brokers and dealers exist in markets for some goods, such as securities, but not others. More importantly, it does not explain how the prices of broker and dealer services are set. To answer these questions, we must examine the "market for markets," that is, the demand for and supply of broker and dealer services.

Broker and dealer services are a separate economic good, although they are complimentary to the underlying stock.⁶⁰ The service a broker or dealer provides is "marketability," which is measured by the waiting time in disposing of the stock and the difference between the price received and the price that would be obtained at an equilibrium, if all buy and sell orders reached the market simultaneously.⁶¹

Marketability is demanded by sellers or buyers who are willing to trade price for immediate execution. Marketability is supplied by dealers or specialists who balance the supply and demand of stocks over time. The cost of marketability to buyers will be the same as it is to sellers, that is, the difference between the price which they obtain on immediate execution and the price they would obtain when a willing buyer or seller entered the market.⁶² In a competitive market for marketability services, this difference will equal the dealer's or specialist's marginal cost of carrying inventories.⁶³

spread."); Hamilton, *Marketplace Organization and Marketability: NASDAQ, the Stock Exchange, and the National Market System*, 33 J. FIN. 487 n.2 (1978) ("The price of marketability generally has been represented as the difference or spread between bid and ask prices."); Tinic, *The Economics of Liquidity Services*, 86 Q.J. ECON. 79, 87 (1972).

59. See Poser, *supra* note 52, at 906-07 (discussing the term "economically efficient execution").

60. "[I]f an increase in price of either [broker or dealer] service (with all other prices unchanged) reduces the amount demanded by traders, it also reduces the demand for the stock itself." R. WEST & S. TINIC, *supra* note 49, at 80. Thus, even if stock prices do not change, substitutions in investors' portfolios might still occur because of variations in relative prices of broker or dealer services. *Id.* at 81.

61. *Id.* at 85. For the purpose of analyzing the securities markets, we can treat waiting time as insignificant. The spread alone is usually considered the price for immediate execution, see, e.g., Benston & Hagerman, *supra* note 58, at 354, and thus waiting time does not usually enter formal analysis.

62. See *supra* note 58 and accompanying text.

63. R. WEST & S. TINIC, *supra* note 49, at 86-100; Beja & Hakansson, *From Orders to Trades: Some Alternative Market Mechanisms*, in *IMPENDING CHANGES FOR SECURITIES MARKETS: WHAT ROLE FOR THE EXCHANGES?* 157-58 (E. Bloch & R. Schwartz eds. 1979); Tinic, *supra* note 58, at 80. Other transaction costs may also be included in the spread. See Benston & Hagerman, *supra* note 58, at 354-55.

The pricing of dealer services is the subject of much theoretical and empirical study. For a

These theories suggest why markets are created for the exchange of securities and how those exchange services are priced. They do not explain why some markets are organized around specialists and others around dealers. The above discussions did not differentiate between the two, but merely defined a dealer as one who holds inventory.⁶⁴ For the purpose of explaining the linkage of markets, it is only necessary to note the differences between the two types of dealers without reaching a conclusion about which is "superior."

Dealers facilitate immediate execution of trades by purchasing or selling from inventory to "create" the "other side" of a transaction. The hallmark of a stock exchange is that this latter function is performed by a specialist: an individual trader who is obligated to maintain a fair and orderly market.⁶⁵ The specialist maintains a monopolist's or monopsonist's position;⁶⁶ according to exchange rules, trading in the specialist's security must generally take place through the specialist or be exposed to orders in the specialist's book or to "the crowd" at the specialist's post.⁶⁷

The nature of the specialist's obligation, standing ready to buy or sell, demands a fairly continuous market. If orders are infrequent or large, the market will be unbalanced, and the specialist has no alternative but to take the excess into inventory or sell out of inventory until prices adjust. Dealers,

theoretical background, see Garman, *Market Microstructure*, 3 J. FIN. ECON. 257 (1976); Glosten & Milgrom, *supra* note 49. Empirical work in this area includes Directorate of Economic and Policy Analysis and Office of the Chief Economist, Securities and Exchange Commission, *Staff Studies of Multiple Trading of Options* (1986); Benston & Hagerman, *supra* note 58; Branch & Freed, *Bid-Asked Spreads on the Amex and the Big Board*, 32 J. FIN. 159 (1977); Hamilton, *supra* note 58; Ho & Macris, *Dealer Bid-Ask Quotes and Transaction Prices: An Empirical Study of Some AMEX Options*, 39 J. FIN. 23 (1984); Ho & Stoll, *On Dealer Markets Under Competition*, 35 J. FIN. 259 (1980).

64. See *supra* note 54 and accompanying text.

65. See, e.g., New York Stock Exchange Rule 104, N.Y.S.E. Guide (CCH) ¶ 2104 (as amended Aug. 9, 1976); Stoll, *The Stock Exchange Specialist System: An Economic Analysis* 6-10 (Salomon Brothers Center for the Study of Financial Institutions, Graduate School of Business Administration, New York University, Monograph 1985) (discussion of roles of the specialist: auctioneer, broker, dealer and bystander).

66. See Stoll, *supra* note 65, at 24-25 (detailing economic theory of the specialist's monopoly profit); Ho & Stoll, *supra* note 63, at 259 ("the NYSE specialist . . . has a quasi monopoly position"); Hamilton, *supra* note 58, at 488 ("Previous theoretical analysis of the pricing of marketability has mostly concerned the NYSE specialists, which are monopoly (or near monopoly) dealer firms.").

67. This is a result of the so-called "off-board trading restrictions" of the exchanges. See, e.g., New York Stock Exchange Rule 390, N.Y.S.E. Guide (CCH) ¶ 2390 (adopted Mar. 31, 1976); see Stoll, *supra* note 65, at 32-33 (discussion of specialist's "monopoly power" and rule 390). Rules 19c-1 and 19c-3 under the Securities Exchange Act of 1934 generally prohibit exchanges from preventing off-board agency transactions, and prohibit exchanges from preventing off-board principal transactions in securities listed or admitted to unlisted trading privileges on an exchange after April 29, 1979. See 17 C.F.R. §§ 240.19c-1, 240.19c-3 (1986).

on the other hand, have the flexibility to "shop" an order and have the discretion not to take a position. "For this very reason, the over-the-counter dealer can do a better job than an exchange specialist in making a market for stocks having order flows that are thin or unbalanced."⁶⁸ This theory has been supported by evidence indicating that specialists have low trading costs in active markets,⁶⁹ and also by empirical testing of components of bid-ask spreads and stock price variances.⁷⁰

B. Models of Market Linkage and Their Rationales

1. The Intermarket Trading System

The Intermarket Trading System (ITS) has been described as the "prototype" for the other kinds of market linkages.⁷¹ It was created in 1978 by several exchanges through the initiative of the Commission⁷² to implement,

68. R. WEST & S. TINIC, *supra* note 49, at 60. The Chicago Board Options Exchange (CBOE) has reached the opposite conclusion in proposing to add "designated primary market-makers" to function as quasi-specialists on the CBOE trading floor. These specialists are being added in thinly-traded options, where market makers do not perform as well, according to CBOE officials. McMurray, *CBOE Approves Trading System Aimed at Growth*, Wall St. J., May 1, 1987, at 36, col. 1.

69. Hakansson, Beja & Kale, *supra* note 51, at 18 (simulated trading with an automated specialist, assuming change in price between trades is no more than one-eighth point, the cost of "demand smoothing" is estimated at one-third cent per share). Neither this study nor R. WEST & S. TINIC, *supra* note 49, at 60, nor those discussed *infra* note 70 and accompanying text, suggest a causal relationship between specialist or dealer markets and bid-asked spreads. *But see* Stoll, *supra* note 65, at 40-41 (citing a study which concludes that spreads are lower on the NYSE than on NASDAQ, and offering various explanations).

70. Tinic concludes that

[d]ealers can make better markets for stocks in which there are greater opportunities for self-equating block transactions. Therefore common stock issues with a larger number of institutional investors possess better marketability than others in which only a few investors hold very large blocks.

.....

Prices of liquidity (illiquidity) services are more stable for stocks that experience continuous trading activity, a larger number of transactions, and lower prices.

Tinic, *supra* note 58, at 93. See also Cohen, Maier, Schwartz & Whitcomb, *The Returns Generation Process, Returns Variance, and the Effect of Thinness in Securities Markets*, 33 J. FIN. 149, 150 (1978) and studies cited therein (thinness of markets leads to greater variance, and "on non-specialist exchanges, variance is greater for thinner issues").

71. Bernard, *Case Studies in International Market Structure Issues: Market and Clearing Linkages in Broker-Dealer Institute 1986: New Products, 24-Hour Trading, Financial Structures, Market Information* 96 (Practicing Law Institute Corporate Law and Practice Course Handbook Series No. 539, 1986). These other types of linkages are order-flow linkages, mutual offset systems, and market data linkages. *Id.* at 100-11. These are discussed in the remainder of section II(B).

72. The initial ITS plan was submitted by the New York, American, Boston, Pacific, and Philadelphia Stock Exchanges and published by the Commission. See Securities Exchange Act Release No. 14,416, 43 Fed. Reg. 4354 (Feb. 1, 1978). The initial ITS operation was between

in part, the congressional directives of the National Market System legislation.⁷³ The Commission initially proposed to link brokers directly, automatically routing any order to the market with the best price.⁷⁴ Securities exchanges and brokerage firms objected to this proposal because they believed that it would eliminate broker discretion, and that price should not be the sole trade determinant. The Commission realized that it would be impracticable to impose such a system on the exchanges over their objection, and deferred this idea.⁷⁵

The ITS plan as approved by the Commission provided for immediate order routing but not automatic execution.⁷⁶ ITS routes "commitments to trade" from one market to another.⁷⁷ Commitments to trade are firm obligations, usually expiring after one minute, to buy or sell.⁷⁸ The plan also provided for composite quotations, so that traders could determine the best overall bid or offer from any participating exchange.⁷⁹ Problems arose when traders in one market would "trade through" or ignore a better quote sent through ITS from another market.⁸⁰ The participants have taken corrective

New York and Philadelphia; other participants were added a few months later. See Securities Exchange Act Release No. 19,456, 48 Fed. Reg. 4938, 4939 (Feb. 3, 1983).

73. Securities Exchange Act Release No. 14,416, 43 Fed. Reg. 4354, 4354 (Feb. 1, 1978). Section 11A(a)(2) of the Securities Exchange Act of 1934, 15 U.S.C. § 78k-1(a)(2) (1982) directs the Securities and Exchange Commission "to facilitate the establishment of a national market system for securities." Section 11A(a)(1)(D) contains congressional findings that market linkages will, among other things, "foster efficiency" and "enhance competition." *Id.* § 78k-1(a)(1)(D). See generally J. SELIGMAN, THE SEC AND THE FUTURE OF FINANCE 1-80 (1985) (discussing the future of the National Market System).

74. See J. SELIGMAN, *supra* note 73, at 16; Poser, *supra* note 52, at 924.

75. Securities Exchange Act Release No. 14,416, 43 Fed. Reg. 4354, 4362 (Feb. 1, 1978); Poser, *supra* note 52, at 924-25. The idea of automated order routing survived, however. The Cincinnati Stock Exchange set up an "automated exchange" concurrently with the ITS. *Id.* at 926-27. The study of automated trading continues in the literature. See, e.g., Hakansson, Beja & Kale, *supra* note 51. Although the Commission did not adopt the idea of automatic execution, it noted that "[t]his type of proposal has been advanced with considerable conviction by responsible persons and, if perfected, would appear to have the potential for significant efficiencies in securities trading." Securities Exchange Act Release No. 14,416, 43 Fed. Reg. 4354, 4362 (Feb. 1, 1978).

76. See Securities Exchange Act Release No. 14,661, 43 Fed. Reg. 17,419, 17,420 (Apr. 24, 1978).

77. The ITS as finally adopted is explained in detail in Securities Exchange Act Release No. 19,456, 48 Fed. Reg. 4938 (Feb. 3, 1983).

78. If a commitment to trade is accepted at the receiving market, the trade is made and execution confirmed; if it is not accepted, the commitment expires. *Id.* at 4939.

79. See Securities Exchange Act Release No. 14,661, 43 Fed. Reg. 17,419, 17,420 (Apr. 24, 1978).

80. "A 'trade-through' occurs when an execution takes place in one ITS market center at a time when another ITS market center is offering a better price. The Commission traditionally has viewed the occurrence of trade-throughs as 'unacceptable in an evolving national market system.'" Securities Exchange Act Release No. 19,456, 48 Fed. Reg. 4938, 4939 n.11

measures in this area, and the Commission believes trade-throughs are no longer a serious problem.⁸¹ ITS is primitive compared to other routing or linkage systems because it is only a broker-to-broker link, not a broker-to-market link.⁸² Nonetheless, it "is enthusiastically supported by the stock exchanges because it preserves a function for their floor members and does not threaten the central role of the specialist."⁸³

ITS has been approved by the Commission for an indefinite period,⁸⁴ although ITS trading does not account for much market volume.⁸⁵ The Commission staff has concluded that ITS has had no "statistically significant effect on the quality of the primary market,"⁸⁶ and also found that the main impact of ITS was on the size of quotes (number of shares), which was significantly larger for ITS stocks.⁸⁷

The Commission's experience with ITS suggests that it has had a very limited effect on market efficiency. This may be due, in part, to the dominance of the New York Stock Exchange in trading in these securities,⁸⁸

(Feb. 3, 1983) (quoting Securities Exchange Act Release No. 15,671, 44 Fed. Reg. 20,360, 20,364 n.35 (Apr. 4, 1979)).

81. Rules to limit trade-throughs were adopted for the exchanges and the NASD. See Securities Exchange Act Release No. 17,704, 46 Fed. Reg. 22,520 (Apr. 17, 1981); Securities Exchange Act Release No. 19,249, 47 Fed. Reg. 53,552 (Nov. 26, 1982). In its final approval of ITS, the Commission noted that it "has identified less than one percent of ITS transactions as involving potential trade-throughs." Securities Exchange Act Release No. 19,456, 48 Fed. Reg. 4938, 4939 (Feb. 3, 1983).

82. See J. SELIGMAN, *supra* note 73, at 16; Poser, *supra* note 52, at 924.

83. J. SELIGMAN, *supra* note 73, at 17.

84. Securities Exchange Act Release No. 19,456, 48 Fed. Reg. 4938 (Feb. 3, 1983).

85. "By 1981, . . . [ITS volume] had stabilized at about 4 percent of composite volume, and it remains at that level today." Davis, *The Intermarket Trading System and the Cincinnati Experiment in MARKET MAKING AND THE CHANGING STRUCTURE OF THE SECURITIES INDUSTRY* 271 (Y. Amihud, T. Ho & R. Schwartz eds. 1985).

86. M. FITTERMAN & R. COLBY, *THE NATIONAL MARKET SYSTEM: A SELECTIVE OUTLINE OF SIGNIFICANT EVENTS 1971-1985*, at 27 (1985). The Commission staff concluded that ITS did not significantly impact the spreads or price volatility of ITS stocks. DIRECTORATE OF ECONOMIC AND POLICY ANALYSIS, SECURITIES AND EXCHANGE COMMISSION, *A MONITORING REPORT ON THE OPERATION OF THE INTERMARKET TRADING SYSTEM: 1978-1981*, June 1982, at 39-40, 47-48 [hereinafter *MONITORING REPORT*].

87. The *MONITORING REPORT*, *supra* note 86, noted that, in general, larger quote size improves market quality because it decreases the number of transactions necessary to fill an order. *Id.* at 40-41. Data from ITS trading show that the average quote size was larger in ITS stocks in all markets and grew over time. *Id.* at 41-44. The New York Stock Exchange estimated that the superior prices available through ITS saved investors \$40 million through 1981. Securities Exchange Act Release No. 19,456, 48 Fed. Reg. 4938, 4940 (Feb. 3, 1983) (citing 1981 N.Y. STOCK EXCHANGE ANN. REP. 10-11).

88. Although the NYSE participates in transactions accounting for about 90 percent of total ITS volume, the share volume of ITS trades completed on the NYSE is less than 3 percent of total NYSE share volume. . . . The regional exchanges . . . derive a sizable portion of their volume from the ITS. [M]ost of the regionals' ITS

which suggests that ITS was superimposed on a pre-existing centralized market. Indeed, the limited impact of ITS may be due in part to the preference of traders for a centralized marketplace.⁸⁹

Despite these limitations, ITS may have contributed to economic efficiency in two ways. It has resulted in larger quotes which may reduce the number of transactions⁹⁰ and thus lower transaction costs. In addition, the Commission noted that ITS increases the ability of regional and over-the-counter market makers to use superior quotations to attract order flow from the primary exchanges.⁹¹ Although these contributions may indeed be efficiencies, they are not of a magnitude that would move these markets to create ITS on their own as a profit maximization strategy. ITS is of limited use as an economic model because it was created under strong direction from the Commission.⁹² The practical experience of ITS trading, however, might

volume is transacted with the NYSE, and most of this volume results from commitments sent to the NYSE from the regional exchanges.

Davis, *supra* note 85, at 271-72.

The NYSE accounts for 82% of all share volume and 85% of all dollar volume in exchange-traded securities. See Securities and Exchange Commission, *supra* note 8, at 132. "Most trading in ITS Stocks occurs on the floor of the NYSE without the use of ITS." MONITORING REPORT, *supra* note 86, at 16.

89. See Ketchum, *supra* note 25, at 35 ("Any efforts the Commission has made to encourage competition in the markets in this country has [sic] run up against the clear preference of the securities industry for centralization in one marketplace.").

90. See *supra* note 87. None of the literature examined in part II(A) explicitly included quote size in theories of supply of and demand for marketability services.

91. The Commission has suggested that the secondary market makers may "attract orders by disseminating superior quotations." Securities Exchange Act Release No. 19,456, 48 Fed. Reg. 4938, 4940 (Feb. 3, 1983). The Commission staff, however, found no significant statistical effect of ITS on spreads, see MONITORING REPORT, *supra* note 86, at 40; Davis, *supra* note 85, at 274. Therefore, this increased participation of regional and over-the-counter market makers would theoretically increase economic efficiency through potential competition which would keep the primary market spreads narrow. On the role of potential competition in this area, see J. SELIGMAN, *supra* note 73, at 49-50. The regional stock exchanges' limited capacity may also limit the effectiveness of their competition. See *The Future of the Exchanges*, FIN. WORLD, Sept. 16, 1986, at 70 ("[T]he brokerages have learned [because of ITS] that they can save as much as 20% on floor trading by sending one-fourth of their orders to the eager regionals, which lack the liquidity to handle much more."). *Id.* at 72-73.

92. See Karmel, *Can Regulators of International Capital Markets Strike a Balance Between Competing Interests?*, 4 B.U. INT'L L.J. 105, 108-09 (1986) ("Whether [ITS] will provide a model for international linkages time will tell, but . . . I will note there are no super-regulatory agencies to compel the kind of cooperation that was necessary among various United States exchanges in order to develop ITS.").

Strictly speaking, the Commission did not dictate the form of ITS, but it did heavily pressure the industry to devise its own plan. In its concept release on development of a national market system in 1978, the Commission noted that

[w]hile [it] believes that development of a national market system should remain essentially an evolutionary process, free of the rigidities inherent in any Commission attempt to dictate the ultimate configuration of that system, that development has

serve to decrease the technological and learning costs of future market links.

2. Securities Market Links

There are currently three trading linkages between the United States and Canada that connect five exchanges. Boston and Montreal have developed a one-way link that enables orders for Boston-listed and ITS stocks to be placed from Montreal. The Amex-Toronto and Midwest-Toronto links provide for or anticipate two-way trading in all dually-listed stocks.

The Boston-Montreal link appears to be a simple order-routing arrangement. Boston executes orders (for its usual fees) for Montreal traders, just like other traders.⁹³ Boston specialists benefit from increased order flow to the extent the linkage brings orders to Boston that would have been executed elsewhere or not entered at all.⁹⁴ If the new trading occurs in dually-listed stocks, the trading activity presumably would be moving to Boston from Montreal. If the new trading is in stocks not traded in Montreal, it would be moving to Boston from a dealer.⁹⁵ Alternatively, the new trading could result from investors who are attracted to the linkage, forsaking other investments.

In each of these above examples, traders would come to Boston only in lieu of other trading intermediaries. The economic theories discussed above indicate that traders use intermediaries to reduce costs and to achieve flexibility in orders.⁹⁶ In order to be effective, therefore, the linkage must reduce

been impeded by the inability of the several discrete segments of the securities industry to surmount the problems presented by the diversity of their interests and to settle upon a common course of action to implement the Congressional policy.

Securities Exchange Act Release No. 14,416, 43 Fed. Reg. 4354, 4357 (Feb. 1, 1978); see J. SELIGMAN, *supra* note 73, at 51-53 (discussing the "conservative approach of [former SEC] Chairman Williams" to development of a national market system).

93. See Securities Exchange Act Release No. 21,324, 49 Fed. Reg. 37,200, 37,200 (Sept. 21, 1984) ("The BSE [Boston Stock Exchange] shall bill the Montreal member for standard trade recording and value charges.").

94. "The . . . linkage will enable the BSE to attract additional order flow which in turn enhances the depth and liquidity of the markets of BSE specialists." *Id.*

95. The extent of trading by other entities would depend on the particular stock involved. As ultimately implemented, the link includes Canadian national companies whose stock is traded in Boston, and all ITS-eligible securities traded in Boston. *Id.* at 37,200; Securities Exchange Act Release No. 21,603, 50 Fed. Reg. 908, 908 (Jan. 7, 1985). Either of these categories could include stocks also traded in Montreal. Independent of trading in Montreal, these stocks could be traded by dealers in the United States only if they are not subject to an exchange's off-board trading restrictions. See *supra* note 67. There is generally very little off-board trading in Canada. Grass, *U.S./Canadian Trading Markets—What's the Difference?*, SECURITIES TRADERS' MONTHLY, Feb. 1987, at 12.

96. See *supra* notes 53-58 and accompanying text.

the trader's costs, or make it possible to execute trades in Boston that other markets would turn away.

Costs would be reduced or services would be enhanced if execution costs in Boston were already lower than any other alternative, or if the physical link itself reduced costs. In the former case, there would be no need for a formal link; business would flow to Boston because of its lower costs.⁹⁷ Therefore, it is reasonable to assume that the physical link is expected to reduce transaction costs of Montreal traders.⁹⁸

This explains why the Boston-Montreal linkage could be viable even with relatively small order flow. Boston specialists are compensated directly, and Montreal traders have the benefit of lower execution costs. In the case of the Boston specialists, a larger order flow might result in cost savings, either from economies of scale⁹⁹ or lower inventories,¹⁰⁰ but a small order flow is not necessarily unprofitable.

The Amex and Midwest linkages with Toronto are different in many ways from the Boston-Montreal arrangement. Trading is two way,¹⁰¹ it is limited to dually-listed stocks, and it can include "away from the market" orders as well as market orders.¹⁰² These differences suggest that different economic motivations underlie these linkages.

Theoretical analysis of these linkages begins from the same point: the linkage should be successful only if it reduces transaction costs, by reducing the direct costs of the specialist or by providing better execution.¹⁰³ The Commission stated that each linkage could provide increased market competition and greater liquidity¹⁰⁴ which involves similar theoretical assumptions. Market competition would "increase," meaning spreads would

97. Loss of business to United States exchanges is one reason given for the interest of the Canadian markets in linkages; another is the continuing competition between Montreal and Toronto for listings. *Parallel Markets*, *ECONOMIST*, May 18, 1985, at 87.

98. For example, in Phase I of the linkage, computer terminals were placed on the floor of the Montreal exchange, allowing traders there to route orders directly to Boston. Securities Exchange Act Release No. 21,449, 49 Fed. Reg. 44,575, 44,575 (Nov. 7, 1984). In Phase II, computer terminals were placed on the floor of the Boston exchange which are connected to Montreal's automatic order-routing system. Securities Exchange Act Release No. 21,603, 50 Fed. Reg. 907, 908 (Jan. 7, 1985). Either of these arrangements would reduce transaction costs for the Montreal trader, the second even more than the first.

99. Certain economies of scale have been documented in specialist operations. See Stoll, *supra* note 65, at 20-21.

100. See *supra* notes 68-70 and accompanying text.

101. Currently, all Boston-Montreal trading takes place in Boston, but the exchanges have planned "Phase III" of their linkage, which would include northbound trading. Securities Exchange Act Release No. 22,442, 50 Fed. Reg. 39,201, 39,201 n.6 (Sept. 27, 1985).

102. Initially, however, the link is set up to transmit only marketable orders. *Id.* at 39,202.

103. See *supra* notes 53-58 and accompanying text.

104. See Securities Act Release No. 23,075, 51 Fed. Reg. 11,854, 11,857 (Apr. 7, 1986)

narrow,¹⁰⁵ if there are barriers between the markets in the United States and Canada such that brokerage services are not competitively priced now, or if the linkage itself generates cost savings that alter the dealers' marginal costs.¹⁰⁶ Liquidity would be greater if volume increases by the nature of the specialist's function. However, all other things being equal, linked trading alone would not be expected to increase overall trading volume.

Thus, the success of this type of link depends on cost savings resulting from the existence of the link itself. Furthermore, these cost savings would not result from trading leaving one of the exchanges because it has higher overall costs; if that were the preexisting cost structure, the higher-cost exchange would have no incentive to link with its competition. The cost reductions must be expected from the ability to "pick off" trades from the other market with a better quote.¹⁰⁷ Sometimes the United States specialist would get the trade, other times it would go to the Toronto trader. But, if absent the linkage these willing trades would go unsatisfied, then the linkage would lower costs. Once costs are lowered, the volume would be expected to increase,¹⁰⁸ which would lower costs still further.¹⁰⁹

The United States experience with ITS may provide a useful analogy to the development of the Toronto-United States linkages. The features of both

(Midwest-Toronto link); Securities Act Release No. 22,442, 50 Fed. Reg. 39,201, 39,203 (Sept. 27, 1985) (Amex-Toronto link).

105. In the releases approving the linkages, the Commission did not specify what it meant by "increasing" competition. It can be assumed that the competition is expected to have some measurable impact on costs in order to be "increasing." Competition in the abstract, without any perceived impact on costs or prices, may be of some value, but it is difficult to measure.

106. This could happen, for example, if the total trading on the two exchanges generates economies of scale which are not present on each exchange separately. These scale economies would cause trading to go to one market once the two are linked. See *supra* note 99 and accompanying text; see also Beja & Hakansson, *supra* note 63, at 149 (economies of scale from decreasing market segmentation in a dealer market).

107. The ability to "pick off" better quotes depends, in turn, on effective "trade-through" protection. See *supra* notes 80-81 and accompanying text (trade-through problems in the ITS). The Toronto linkages were originally designed to include "a limited form of trade-through protection." Securities Exchange Act Release No. 22,001, 50 Fed. Reg. 19,507 (May 9, 1985). Both linkages do guarantee execution of certain small market orders. Securities Exchange Act Release No. 22,442, 50 Fed. Reg. 39,201, 39,202 (Sept. 27, 1985) (Amex-Toronto link); Securities Exchange Act Release No. 23,075, 51 Fed. Reg. 11,854, 11,856 (Apr. 7, 1986) (Midwest-Toronto link). Commenting on the Amex-Toronto linkage, Amex President Kenneth Leibler noted: "We're not providing a market that someone can't reach any other way, . . . [b]ut we have provided one we feel is quicker and more efficient." Hiltzik, *Global Trading is Making SEC Task Tougher*, Los Angeles Times, Aug. 17, 1986, pt. IV, at 1, col. 2.

108. Lower costs would increase demand because marketability services are a good complementary to the stock. The stock itself would thus be a more attractive investment. See *supra* note 60 and accompanying text.

109. Increasing volume decreases a specialist's costs. See *supra* notes 68-70 and accompanying text.

the Amex-Toronto and Midwest-Toronto agreements resemble ITS in many important ways, such as dual quotations, two-way trading and trade-through protection. The trading actually is more than two-way, because almost all the linked-trading securities are traded on several exchanges,¹¹⁰ and ITS provides access to and for the other United States exchanges.

ITS was found to increase the size of quotations and provide potential, if not actual, competition from regional exchanges that would keep spreads small.¹¹¹ The benefits of ITS were limited largely because it was superimposed upon a system that was already centralized.¹¹² The Amex and Midwest links include primary markets as well¹¹³ and, therefore, may yield only small efficiencies due to preexisting centralization. The existence of any potential competition¹¹⁴ may keep transaction costs from increasing, but it would not lower spreads where the cost structure of all competitors is the same.

Therefore, the Amex and Midwest links with Toronto appear to depend on drawing significant volume in order to be viable. Each exchange recognized this in its initial filing with the Commission, noting its intention to expand the linkage to all dually-traded stocks.¹¹⁵ Amex has expanded linked trading to seventeen stocks from its pilot size of seven,¹¹⁶ and Midwest to eighteen from its pilot size of six.¹¹⁷ Although experience is limited at this point, trading links are developing in accord with the economic theo-

110. Most of the securities traded in the Amex-Toronto link also trade on the Boston, Cincinnati, Midwest, Pacific or Philadelphia exchanges. Some also trade on the Alberta, Montreal, Vancouver, and Winnipeg exchanges. All the securities traded in the Midwest-Toronto link are NYSE-listed. Securities Exchange Act Release No. 23,075, 51 Fed. Reg. 11,854, 11,855 (Apr. 7, 1986). Most trade on the major regional exchanges as well. See National Quotation Bureau, Inc., National Monthly Stock Summary (Nov. 1, 1986).

111. See *supra* notes 87, 91, and accompanying text.

112. See *supra* note 89 and accompanying text.

113. See *supra* note 110.

114. See *supra* note 91.

115. See Securities Exchange Act Release No. 22,442, 50 Fed. Reg. 39,201 (Sept. 27, 1985); Securities Exchange Act Release No. 23,075, 51 Fed. Reg. 11,854, 11,855 (Apr. 7, 1986) (Midwest link would include all dually-traded stocks that are listed on the New York Stock Exchange).

116. Letter from Michael Cavalier, American Stock Exchange, to Christine Sakach, Division of Market Regulation, Securities and Exchange Commission (Feb. 13, 1987). There are 37 stocks dually listed on the Amex and Toronto. Securities Exchange Act Release No. 22,443, 50 Fed. Reg. 39,206, 39,206 n.3 (Sept. 27, 1985) (reduction by Amex of listing fees for linked securities).

117. Letter from Patrick K. Conroy, Midwest Stock Exchange Inc., to Christine Sakach, Division of Market Regulation, Securities and Exchange Commission (Feb. 20, 1987). There are about 62 securities dually listed on the Midwest and Toronto exchanges; all are also listed on the NYSE. Securities Exchange Act Release No. 23,075, 51 Fed. Reg. 11,854, 11,855 (Apr. 7, 1986).

ries discussed above. Additional reasons for development of these links, involving exchange competition and market positioning, are discussed below.

3. *Commodities Market Links*

There are currently two operating commodities market linkages involving United States exchanges: between the Chicago Mercantile Exchange (CME) and the Singapore International Monetary Exchange (SIMEX); and between the Commodities Exchange (Comex) and the Sydney Futures Exchange. Although the CME-SIMEX link operates through offsetting clearing positions while the Comex-Sydney link uses a single clearing agency,¹¹⁸ the two arrangements are otherwise similar.

The structure of United States commodities markets and their regulation differs from the securities markets, which in turn requires new economic analysis. All trading of commodity futures and options must take place on designated markets,¹¹⁹ which means no "over-the-counter" or "upstairs" trading can compete with an exchange. In addition, multiple trading is very rare, which means exchanges do not simultaneously compete for trades.¹²⁰ The lack of simultaneous competition removes most incentives to link discussed above.¹²¹ Without simultaneous trading in the same product available in the linked market, there will be no increase in volume or narrowing of spread to reduce traders' costs.

Some competition does exist on futures exchanges outside the United States which trade similar products. However, these markets are open only when United States markets are closed; the competition with the United States markets is sequential. Linkage of these markets does not generate the high-volume or lower-spread benefits of simultaneous markets because there can be no aggregation. However, sequential linkage can reduce timing risks. In discussing economic theories of securities markets, time to execution is

118. See *supra* note 11 and accompanying text (discussion of the CME-SIMEX arrangement); *supra* note 45 and accompanying text (discussion of the Comex-Sydney arrangement).

119. See Commodity Exchange Act § 4, 7 U.S.C. § 6 (1982); 1 P. JOHNSON, *supra* note 31, at 206-12. But see Karr, *Climb in Off-Exchange Futures Sales Challenges CFTC*, Wall St. J., Mar. 3, 1987, at 10, col. 1 (development of financial instruments linked to future commodity prices is creating a booming off-exchange market).

120. The CFTC discourages direct competition, but does not prohibit it. 1 P. JOHNSON, *supra* note 31, at 225-27. The competition for *initial* permission to trade a certain contract, however, can be intense. *Id.* at 234-36. While it is theoretically possible that two marketplaces might compete on the basis of lower trading costs, the continued competitive existence of both marketplaces is not likely. Trading will gravitate to one marketplace. *Id.* at 225-27, 234-36. In addition, there are significant substantive barriers to entry. See *id.* at 214-15 (discussing the requirements for contract market designation under the Commodity Exchange Act).

121. See *supra* notes 107-09 and accompanying text.

not significant¹²² because trading throughout the day, to the extent desired by traders, is already practical.¹²³ However, the absence of "upstairs" trading in the commodities markets allows for time-based cost reductions. Trading costs could be reduced if traders can reach the market sooner because their search costs will be lower.¹²⁴

This theory of sequential linkage of commodity exchanges is borne out by the reasons given for the development of those linkages. They are viewed as a way "to share liquidity,"¹²⁵ and to reduce overnight risk.¹²⁶ These sequential links are analogous to another alternative being implemented by domestic exchanges: longer trading hours.¹²⁷

Lengthening the trading day, either unilaterally by an exchange or by linking with an exchange open during different hours, could be expected to increase volume because it would lower the time component of trading costs, such as the overnight risk. These lower costs would inure both to dealers trading for their own account and to their customers. However, these benefits derive in part from the unique nature of commodities market regulation.¹²⁸ Therefore, as in the review of the ITS linkage,¹²⁹ the effects of regulation keep the linkages from being examples of pure economic motivation.

122. See *supra* note 61 and accompanying text.

123. It is the ability of "upstairs" trading to move around the world and around the clock that has caused some commentators to downplay sequential trading links by securities markets. See *Internationalization Hearings*, *supra* note 6, at 41, 46-47 (statement of Gordon S. Macklin, President, National Association of Securities Dealers, Inc.); *id.* at 85 (statement of Donald L. Calvin, Executive Vice President, New York Stock Exchange, Inc.); see also Shopkorn, *Global Trading: The Current and Future Impact on United States Markets and United States Portfolio Managers*, 4 B.U. INT'L L.J. 25, 28 (1986) (development of significant over-the-counter international trading requires extensive information links, but not necessarily trading links). This theory is also evident in the way many discussions about serial securities market links have progressed. The main focus is information sharing; trading links are put off until later. See, e.g., Grant, *supra* note 29, at 16; text accompanying note 39.

124. See *supra* notes 55-61 and accompanying text.

125. Clements, *supra* note 3, at 179.

126. Malkin, *Extraterritorial Application of United States Commodity and Securities Laws to Market Transactions in an Age of Intercontinental Trading Links*, 7 NW. J. INT'L L. & BUS. 351, 354 (1985); *CFTC Approves U.S.-Singapore Link; Expands Trading Day in Three Contracts*, *supra* note 10, at 1457.

127. See *Philadelphia Exchange Plans Nighttime Options Trading*, AM. BANKER, Apr. 2, 1987, at 25 (description of planned evening session in foreign currency options trading); *CBOT's Opening of Evening Session Attracts a Throng*, Wall St. J., May 1, 1987, at 35, col. 1 (description of first CBOT evening trading session).

128. See *supra* notes 119-20 and accompanying text.

129. See Karmel, *supra* note 92, at 108-09.

4. Information Links

There is currently one operating link that does not involve trading between two markets: the "quotation link" between the London Stock Exchange's¹³⁰ Topic system and NASDAQ. Each exchange provides compiled quotations of certain stock prices and stock indexes during normal local market hours.¹³¹ Neither party charges the other any fees for the service.¹³²

The London-NASD link possesses some unique features relevant to theoretical economic analysis. First, the information from the two systems will not be combined; quotes from each source, even on the same security, will continue to appear separately.¹³³ Second, at least in the United States market, the quotes will largely duplicate information currently available. The London information will not generally be available to NASDAQ's retail customers, but only to those who do or could get it from other vendors.¹³⁴

In general, the economic theory of an information link is very much like a trading link. In order for the link to be successful, it must result in reduced trading costs.¹³⁵ Unlike trading links, however, there is no potential for further cost reduction through aggregation of trades; neither trading nor specialists are involved.¹³⁶ Even if there was trading, this link is not between exchanges, but among dealers, who have different costs. Dealers' profits result primarily from their market-making activity,¹³⁷ which depends in part on their ability to "shop" an order.¹³⁸ Dealers incur costs in "shopping" an order that specialists do not because all trades are brought before the specialist.¹³⁹ The availability of more information through a quotation link would reduce a dealer's "shopping" costs, provided that the linked quotations are useful.¹⁴⁰ If the new information is not comparable or competitive, the link

130. See *supra* note 29.

131. See Securities Exchange Act Release No. 23,022, 51 Fed. Reg. 9738, 9738-39 (Mar. 20, 1986).

132. The cost of the satellite linkage will be shared equally. *Id.* at 9739. The "no fee" provision is the subject of a challenge to the plan by Instinet Corp. See Securities Exchange Act Release No. 23,158, 51 Fed. Reg. 15,989, 15,989-90 (Apr. 29, 1986).

133. Securities Exchange Act Release No. 23,158, 51 Fed. Reg. 15,989, 15,990 & n.5 (Apr. 29, 1986).

134. *Id.* at 15,990.

135. See *supra* notes 53-58 and accompanying text.

136. In general, increasing volume decreases a specialist's market-maintenance costs. See *supra* notes 68-70 and accompanying text.

137. See *supra* notes 55-57 and accompanying text.

138. See *supra* note 70. Specialists act like dealers in some trades, Stoll, *supra* note 65, at 8, but a specialist also has a standing commitment to buy, which precludes "shopping" an order. See *supra* note 65 and accompanying text.

139. See *supra* note 67 and accompanying text.

140. Hamilton, *supra* note 58, at 491.

will have no value.¹⁴¹

It is difficult to conclude that there is any incentive, in economic theory, for a quotation linkage such as the NASD-London arrangement that, at least in part, duplicates available information.¹⁴² However, both London and the NASD have indicated that they are using the information link as a first step, and will explore clearing and trading arrangements as well.¹⁴³ This would follow the course outlined by many commentators: first to establish information-sharing links, and then to explore settlement and trading links.¹⁴⁴ The NASD has clear incentives to pursue this course because the "London connection" would be a valuable competitive advantage.¹⁴⁵ Thus, even if the current information-trading arrangement creates no present benefit, it can be viewed as a technological investment, designed to generate profits in an evolving international marketplace.

C. Competition and Market Positioning

The above discussion of the "true" motives for the London-NASD agree-

141. If prices on the other quotation medium are uniformly lower, of course, there will be no incentive to link. See *supra* text accompanying note 107.

142. The Commission noted that the United States individuals receiving the linked information from London "already have access to this information to some extent through foreign vendor systems." Securities Exchange Act Release No. 23,158, 51 Fed. Reg. 15,989, 15,990 (Apr. 29, 1986). The NASD expects some interest to be generated in the inter-quoted securities. In the NASD's most recent application to the Commission, it stated that:

The greater exposure of non-domestic equities information which this Pilot Program provides will assist in broadening the depth and liquidity of the markets and further the ability of issuers to raise capital for future expansion on a truly global basis. More importantly, however, regulatory cooperation is being significantly advanced to the benefit of the entire investing public.

Securities Exchange Act Release No. 23,952, 52 Fed. Reg. 887, 888 (Jan. 9, 1987); see Clements, *supra* note 3, at 180 (quoting NASD President Gordon Macklin that the linkage "could generate additional interest in those securities. Even at its primitive stage there's a customer benefit.").

Similar arguments have been used to justify the newly-proposed NASDAQ-Singapore quotation link. The link will be of limited usefulness; each exchange will provide only closing quotes to the other. See Smith, *supra* note 39, at 40. Macklin notes that one purpose of the linkage is to make NASDAQ companies "more visible in the overseas market." *Id.*

143. See Securities Exchange Act Release No. 23,022, 51 Fed. Reg. 9738, 9738 (Mar. 20, 1986); *Link or Lose*, *supra* note 36, at 87.

144. See *supra* note 6; text accompanying note 124. London and the NASD have explicitly represented that the currently authorized pilot program will not be used to operate an automatic execution system. Securities Exchange Act Release No. 23,952, 52 Fed. Reg. 887, 888 (Jan. 9, 1987). Instinet Corporation's challenge to the arrangement is based in part on the fact that the parties intend that it eventually support trading as well as quotations. *Id.*; Securities Exchange Act Release No. 23,158, 51 Fed. Reg. 15,989, 15,990 (Apr. 29, 1986).

145. Clements, *supra* note 3, at 179 ("Establishing a link with the London Stock Exchange is a key factor in the battle between the NYSE, Amex and the NASD."); see also *supra* notes 40-42 and accompanying text (interests of other competitors in London linkage).

ment brings another factor into the economic analysis of the international market for markets: marketing. Part of the motivation for linkage development may be a technological investment necessary for future business.¹⁴⁶ The economic theories of market development discussed above assumed that changes in market structure would immediately reduce costs of execution or improve its quality.¹⁴⁷ Most of the links do not conform to these theories; large amounts of trading have not followed the new structure. This suggests that different motivations may be responsible.

Supply of, and demand for, marketability services do not converge in a homogeneous marketplace. "In the common American fashion, the exchanges form a national industry whose dynamic rivalries are key assets in an increasingly global financial marketplace."¹⁴⁸ The various exchanges and NASDAQ engage in continuous competition for listings and products. Internationalization is simply one more area for that competition,¹⁴⁹ and promotional activities or "marketing aggression" are an important part of the effort.¹⁵⁰ Thus, the NYSE and NASD, both are seeking to establish connections with London,¹⁵¹ the Amex,¹⁵² Midwest,¹⁵³ and Boston¹⁵⁴ each see varied niche-building opportunities in their linkages.

The ability of exchanges to carve out niches of exclusive expertise is important for their profitable operation. Most observers believe that the international market will be a dealer market.¹⁵⁵ Economic theory suggests that exchanges are less efficient in this kind of market, with its infrequent, larger trades,¹⁵⁶ although exchange trading does have its advocates.¹⁵⁷ Thus, it

146. Competition creates particular uncertainty about the extent of necessary investment. See *supra* note 4.

147. See text accompanying *supra* note 103; see also *supra* notes 53-58 and accompanying text.

148. *The Future of the Exchanges*, *supra* note 91, at 72. The same is true of the Canadian exchanges. See Clements, *supra* note 3, at 180-83; *Parallel Markets*, *supra* note 97, at 88.

149. *The Future of the Exchanges*, *supra* note 91, at 76-77.

150. See Clements, *supra* note 3, at 179 (discussing major recent unsuccessful marketing efforts by the Chicago Board of Trade and the Chicago Mercantile Exchange in two new index products).

151. See *id.* at 179-80; Dodds, *NASDAQ: On a Roll*, FIN. WORLD, Sept. 16, 1986, at 84, 88.

152. See Soneclar, *Hanging on at the Amex*, FIN. WORLD, Sept. 16, 1986, at 82, 83.

153. See Stevens, *The Regionals Shape Up*, FIN. WORLD, Sept. 16, 1986, at 93, 98.

154. *Id.* at 96.

155. See, e.g., *Internationalization Hearings*, *supra* note 6, at 137 (statement of Jeffrey R. Knight, Chief Executive, London Stock Exchange); Shopkorn, *supra* note 123, at 29; Hiltzik, *supra* note 107, at 6 see also *supra* note 6.

156. See *supra* note 70 and accompanying text.

157. Jeffrey R. Knight, Chief Executive of the London Stock Exchange, notes that pension funds and other fiduciaries may move trading currently "upstairs" to an exchange "where the determination of prices for securities is visible and reliable." *Internationalization Hearings*,

would be profitable for an exchange to maintain a competitive edge even if it is not currently profitable; "skilful marketing *can* save exchanges."¹⁵⁸ A linkage would be part of this effort; it would tend to lower future marketability costs. Viewed from this perspective, investment in market linkages with minimal current trading is rational economic activity.

III. THE ROLE OF REGULATION

The theory and evidence examined in Parts I and II indicate that markets are linking to establish competitive positions for desired future expansion. If they link to take advantage of currently-available cost reductions, greater volume must be generated for the links to be viable.¹⁵⁹ Furthermore, international trading, whether on or off board, is likely to be institutional and block-sized. There will be little trading by individuals.¹⁶⁰

The role of regulation in the development of the international securities markets has not been a new or unfamiliar one. Exchange linkage is a modification of traditional exchange operation. The relevant regulatory issues, therefore, are the same: market surveillance and oversight. In each of the four linkages that the Commission has approved—three for trading and one for quotations—it has stressed the linked markets' abilities to surveil the international trading¹⁶¹ and the Commission's ability to oversee linked exchange operations, especially those outside the United States.¹⁶² In addition to the actual trading link, clearance and settlement of linked trades is an area

supra note 6, at 138. He also notes that "[t]he prospect of stock markets being translated substantially to international electronic networks carries with it the possibility of a reduction, even a major reduction, in the quality of regulation able to be applied to the markets." *Id.* In addition, commentators have speculated that the NYSE maintains an almost inherent preeminence. *The Future of the Exchanges*, *supra* note 91, at 72; *see also International Hearings*, *supra* note 6, at 51 (statement of Donald L. Calvin, Executive Vice President, New York Stock Exchange, Inc.) (market's reliance on NYSE price as a benchmark); Ketchum, *supra* note 25, at 35 (preference of United States traders for a marketplace centered around the NYSE); *cf.* McMurray, *supra* note 68, at 36 (perceived superior performance of specialists in thinly-traded issues).

158. Clements, *supra* note 3, at 183 (emphasis in original) (citing the Montreal and Philadelphia Stock Exchanges as examples).

159. The one-way Boston-Montreal arrangement, however, could be viable with low volume. *See supra* notes 98-99 and accompanying text.

160. *See* Clements, *supra* note 3, at 176, 183.

161. *See* Securities Exchange Act Release No. 21,449, 49 Fed. Reg. 44,575, 44,575 (Nov. 7, 1984) (Boston); Securities Exchange Act Release No. 22,442, 50 Fed. Reg. 39,201, 39,204 (Sept. 27, 1985) (Amex); Securities Exchange Act Release No. 23,075, 51 Fed. Reg. 11,854, 11,857 (Apr. 7, 1986) (Midwest); Securities Exchange Act Release No. 23,158, 51 Fed. Reg. 15,989, 15,990 (Apr. 29, 1986) (NASD).

162. *See* Securities Exchange Act Release No. 21,449, 49 Fed. Reg. 44,575, 44,576 (Nov. 7, 1984) (Boston); Securities Exchange Act Release No. 22,442, 50 Fed. Reg. 39,201, 39,204-06 (Sept. 27, 1985) (Amex); Securities Exchange Act Release No. 23,075, 51 Fed. Reg. 11,854,

of paramount concern.¹⁶³ Many commentators have indicated that this is the largest roadblock to development of a smooth international market.¹⁶⁴

The details of exchange operation are mechanical regulatory concerns, but they are an important first step.¹⁶⁵ If there is to be any expansion or modification of trading or operations on linked exchange markets, there must be a base of effective surveillance and oversight. Such regulation is also necessary to promote actual fairness as well as the perception of fairness. For although

11,857-58 (Apr. 7, 1986) (Midwest); Securities Exchange Act Release No. 23,158, 51 Fed. Reg. 15,989, 15,990 (Apr. 29, 1986) (NASD).

163. In generally discussing internationalization, the Commission noted that "as the trend toward international trading increases, it will become increasingly important for foreign trading markets to establish efficient, safe, and accurate comparison, clearance, and settlement systems especially if they seek to link with United States securities markets and their respective clearing agencies." Securities Exchange Act Release No. 21,958, 50 Fed. Reg. 16,302, 16,307 (Apr. 25, 1985).

164. See *Internationalization Hearings*, *supra* note 6, at 44 (statement of Gordon S. Macklin, President, National Association of Securities Dealers Inc.); *id.* at 65-66 (statement of Donald L. Calvin, Executive Vice President, New York Stock Exchange); *id.* at 138 (statement of Jeffrey R. Knight, Chief Executive, London Stock Exchange); Hunter, *The Status and Evolution of Twenty-four Hour Trading: A Trader's View of International Transactions, Clearance, and Settlement*, 4 B.U. Int'l L.J. 15, 21 (1986); Ketchum, *supra* note 25, at 37; Shopkorn, *supra* note 123, at 29.

There have been market responses in linkage of clearing systems as well as the trading systems discussed in this Article. The settlement mechanisms in the Boston, Amex and Midwest linkages are similar: the Canadian Depository for Securities has affiliated with the respective United States clearing agency in each case. Securities Exchange Act Release No. 21,449, 49 Fed. Reg. 44,575, 44,575 n.5 (Nov. 7, 1985) (Boston); Securities Exchange Act Release No. 22,442, 50 Fed. Reg. 39,201, 39,202 (Sept. 27, 1985) (Amex); Securities Exchange Act Release No. 23,075, 51 Fed. Reg. 11,854, 11,856 (Apr. 7, 1986) (Midwest). For a discussion of clearing arrangements in commodities links see *supra* text accompanying note II (CME-SIMEX); text accompanying note 45 (Comex-Sydney).

165. In addition to the mechanics of linked trading, wider issues of international trading are raised by linked trading and its counterpart, worldwide "upstairs" dealing and brokerage. The Commission raised many of these problems in a concept release and request for comment in mid-1985. See Securities Exchange Act Release No. 21,958, 50 Fed. Reg. 16,302 (Apr. 25, 1985).

Many of the substantive concerns of broker-dealers relate to distributions of securities in the United States and United States laws preventing fraud and manipulation. See *The Future of the Exchanges*, *supra* note 91, at 75 (prevention of insider trading).

Two rules which pose problems internationally are Securities Exchange Act Rules 10b-6 and 10b-7, which limit a broker-dealer's ability to participate in and stabilize the price of securities it underwrites or distributes. See 17 C.F.R. §§ 240.10b-6, .10b-7 (1986); see Securities Exchange Act Release No. 21,958, 50 Fed. Reg. 16,302, 16,308-09 (Apr. 25, 1985); Ketchum, *supra* note 25, at 35; Newburg, *United States Companies and International Financings*, 20 INT'L LAW. 765, 774 (1986).

Another area of concern is the extent to which such activities will be permitted by foreign broker-dealers in the United States without registration. See generally Securities Act Release No. 4708, 29 Fed. Reg. 9828 (July 22, 1964) (permitted extent of participation). The Commission also has noted barriers to United States broker-dealers' entry into certain foreign markets. See Securities Exchange Act Release No. 21,958, 50 Fed. Reg. 16,302, 16,308 (Apr. 25, 1985).

the international market is, and will probably remain, the province of dealers and institutional investors,¹⁶⁶ observers recognize that the individual must have a place and must be assured that the market is open to him as well.¹⁶⁷ This is important to larger traders as well; uncertainty and unfamiliarity is the primary reason that trading takes place on the telephone. Trading upstairs provides an opportunity to become familiar with another trader's business, reliability, customs, and other attributes.¹⁶⁸

For all these reasons, some amount of regulation will continue in linked markets, independent of the larger questions of international brokerage regulation generally.¹⁶⁹ Linked markets must function smoothly and fairly, or they provide no advantage. This requires at least effective surveillance and oversight. Such regulation does impose an additional cost,¹⁷⁰ but it is necessary for the effective protection of the markets.¹⁷¹ Fair development of international trading, whether in response to eventual demand or simply competitive market positioning, demands no less.

IV. CONCLUSION

Several linkages of securities markets, commodities markets, and quotation systems have been adopted in the past three years and many more have been proposed. The economic theory of securities market operation suggests that linkages could reduce costs if they increase the volume of trading handled by exchange specialists. This would lower the specialist's cost of operations and narrow spreads, which could in turn increase volume further.

166. See *supra* text accompanying notes 155 & 160.

167. Taub, *The Big Board: New Vigor*, FIN. WORLD, Sept. 16, 1986, at 78, 79.

168. See *Internationalization Hearings*, *supra* note 6, at 47 (statement of Gordon S. Macklin, President, National Association of Securities Dealers, Inc.) ("[F]irms may very well prefer, in the early stages [of international trading], to use the telephone contact as a means of building close professional relationships from country to country."); Shopkorn, *supra* note 123, at 29 (If a system of "anonymous counterparties" develops, user quality may become low, which "plays into the hands of those who insist that the human element of trading will never be replaced.").

169. See Clements, *supra* note 3, at 183 (discussing government "demand" for regulation).

170. See *id.*; Amihud, Ho & Schwartz, *Overview of the Changing Securities Markets* in MARKET MAKING AND THE CHANGING STRUCTURE OF THE SECURITIES INDUSTRY 9 (Y. Amihud, T. Ho & R. Schwartz eds. 1985) ("To achieve the best possible trading system for financial markets, we need discretionary planning. To get such planning, we must look to the regulators.").

171. See *The Future of the Exchanges*, *supra* note 91, at 75 (quoting Securities and Exchange Commission Chairman John Shad: "They [foreign exchanges] should be willing to [adopt United-States-style regulation] for the good of their own markets."); Karmel, *supra* note 92, at 105 (although international securities traders are not interested in regulation, they will adopt it as necessary to inspire the investor confidence required for proper market development).

Such potential exists in the Amex-Toronto and Midwest-Toronto links, and to a lesser extent in the Boston-Montreal link, because it currently involves only one-way trading. The economic theory of commodities market operations suggests that linkages could reduce time-to-market risk, and thus lower trading costs. Such potential exists in the CME-SIMEX and Comex-Sydney links as well as in the longer trading hours implemented by the Chicago Board of Trade and planned by other markets.

Even if linkages do not result in immediately lower trading costs for customers, specialists or market makers, incentives to link still exist. Exchanges compete for listings and for trades, and this is another basis of competition. International trading is an uncertain and unfamiliar area. If an exchange can reduce uncertainty or unfamiliarity by linking with another exchange, it has a competitive advantage over other exchanges and the "upstairs" market. This suggests why linkage efforts would persist absent large trading volume.

These developments do not produce novel regulatory problems, but require regulators to apply familiar policies in a new area. As with domestic markets, regulators must assure adequate surveillance and oversight. The Commission has taken specific steps in each approved link to assure adequate access to information to monitor both the trading and the exchanges' self-regulation. Regardless of how or why linked markets exist, this regulation will permit fair development of the new international marketplace.